

SUBCHAPTER J—ELECTRICAL ENGINEERING

PART 110—GENERAL PROVISIONS

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AUTHORITY: 33 U.S.C. 1509; 43 U.S.C. 1333; 46 U.S.C. 3306, 3307, 3703; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1; §110.01-2 also issued under 44 U.S.C. 3507. Sections 110.15-1 and 110.25-1 also issued under sec. 617, Pub. L. 111-281, 124 Stat. 2905.

SOURCE: CGD 74-125A, 47 FR 15232, Apr. 8, 1982, unless otherwise noted.

Subpart 110.01—Applicability

§ 110.01-1 General.

(a) This subchapter applies to all electrical installations on vessels subject to subchapters D, H, I, I-A, K, L, O, Q, R, T, U, and W of this chapter whenever those subchapters require an electrical installation to be in accordance with this subchapter.

(b) This subchapter applies only to electrical installations contracted for after September 30, 1996.

(c) Installations and equipment accepted by the Coast Guard as meeting the applicable requirements in this subchapter in effect on the date the installation was contracted for and which are maintained in good and serviceable condition to the satisfaction of the Officer in Charge, Marine Inspection, may be continued in use until replacement is ordered by the Officer in Charge, Marine Inspection, or as specified in the regulations.

(d) [Reserved]

(e) Electrical systems internal to a pressure vessel for human occupancy (PVHO) need not meet the requirements of this subchapter, but must meet the requirements of Subpart B (Commercial Diving Operations) of part 197 of this chapter.

[CGD 74-125A, 47 FR 15232, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28271, June 4, 1996]

§ 110.01-2 OMB control numbers assigned pursuant to the Paperwork Reduction Act.

(a) *Purpose.* This section collects and displays the control numbers assigned to information collection and record-keeping requirements in this subchapter by the Office of Management and Budget (OMB) pursuant to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*). The Coast Guard intends that this section comply with the requirements of 44 U.S.C. 3507(f) which requires that agencies display a current control number assigned by the Director of the OMB for each approved agency information collection requirement.

(b) *Display.*

46 CFR part or section where identified or described	Current OMB control No.
Subpart 110.25	1625-0031

[49 FR 38121, Sept. 27, 1984, as amended by USCG-2004-18884, 69 FR 58348, Sept. 30, 2004]

§ 110.01-3 Repairs and alterations.

(a) Repairs and replacements in kind must comply with either the regulations in this subchapter or those in effect when the vessel was built.

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(b) Alterations and modifications, such as re-engining, re-powering, upgrading of the main propulsion control system, or replacing extensive amounts of cabling, must comply with the regulations in this subchapter.

(c) Conversions specified in 46 U.S.C. 2101(14a), such as the addition of a midbody or a change in the service of the vessel, are handled on a case-by-case basis by the Commanding Officer, Marine Safety Center.

[CGD 94-108, 61 FR 28271, June 4, 1996, as amended at 62 FR 23906, May 1, 1997]

§ 110.01-4 Right of appeal.

Any person directly affected by a decision or action taken under this subchapter, by or on behalf of the Coast Guard, may appeal therefrom in accordance with subpart 1.03 of this chapter.

[CGD 88-033, 54 FR 50380, Dec. 6, 1989]

Subpart 110.10—Reference Specifications, Standards, and Codes

§ 110.10-1 Incorporation by reference.

(a) Certain material is incorporated by reference into this subchapter with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish notice of change in the FEDERAL REGISTER and the material must be available to the public. The word “should,” when used in material incorporated by reference, is to be construed the same as the words “must” or “shall” for the purposes of this subchapter. All approved material is available for inspection at the U.S. Coast Guard, Office of Design and Engineering Standards (CG-ENG), 2703 Martin Luther King Jr. Avenue SE., Stop 7126, Washington, DC 20593-7126, and is available from the sources listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030 or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(b) American Bureau of Shipping (ABS), ABS Plaza, 16855 Northchase Drive, Houston, TX 77060, 281-877-5800, <http://www.eagle.org>.

(1) Rules for Building and Classing Steel Vessels, Part 4 Vessel Systems and Machinery, 2003 (“ABS Steel Vessel Rules”), IBR approved for §§110.15-1, 111.01-9, 111.12-3, 111.12-5, 111.12-7, 111.33-11, 111.35-1, 111.70-1, 111.105-31, 111.105-39, 111.105-40 and 113.05-7.

(2) Rules for Building and Classing Mobile Offshore Drilling Units, Part 4 Machinery and Systems, 2001 (“ABS MODU Rules”), IBR approved for §§111.12-1, 111.12-3, 111.12-5, 111.12-7, 111.33-11, 111.35-1 and 111.70-1.

(c) American National Standards Institute (ANSI), 25 West 43rd Street, New York, NY 10036, 212-642-4900, <http://www.ansi.org/>.

(1) ANSI/IEEE C37.12-1991—American National Standard for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis—Specifications Guide, 1991 (“ANSI/IEEE C37.12”), IBR approved for §111.54-1.

(2) ANSI/IEEE C37.27-1987 (IEEE Std 331)—Application Guide for Low-Voltage AC Nonintegrally Fused Power Circuitbreakers (Using Separately Mounted Current-Limiting Fuses), 1987 (“ANSI/IEEE C37.27”), IBR approved for §111.54-1.

(3) ANSI/ISA 60079-18—Electrical Apparatus for Use in Class I, Zone 1 Hazardous (Classified) Locations: Type of Protection—Encapsulation “m”, approved July 31, 2009 (“ANSI/ISA 60079-18”), IBR approved for §111.106-3(d).

(d) American Petroleum Institute (API), Order Desk, 1220 L Street NW., Washington, DC 20005-4070, 202-682-8000, <http://www.api.org>.

(1) API RP 500—Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2, Second Edition, November 1997, reaffirmed in 2002 (“API RP 500”), IBR approved for §§111.106-7(a) and 111.106-13(b).

(2) API RP 505—Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1, and Zone 2, First Edition, approved January 7, 1998 (dated November 1997), reaffirmed 2002 (“API RP

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505”), IBR approved for §§111.106-7(a) and 111.106-13(b).

(e) American Society of Mechanical Engineers (ASME) International, Three Park Avenue, New York, NY 10016-5990, 800-843-2763, <http://www.asme.org/>.

(1) ASME A17.1-2000—Part 2 Electric Elevators, 2000 (“ASME A17.1”), IBR approved for §111.91-1.

(2) [Reserved]

(f) ASTM International (formerly American Society for Testing and Materials), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, 610-832-9500, <http://www.astm.org>.

(1) ASTM B 117-97—Standard Practice for Operating Salt Spray (Fog) Apparatus (“ASTM B 117”), IBR approved for §110.15-1.

(2) ASTM F2876-10—Standard Practice for Thermal Rating and Installation of Internal Combustion Engine Packages for use in Hazardous Locations in Marine Applications, approved November 1, 2010 (“ASTM F2876-10”), IBR approved for §111.106-3(h).

(g) Canadian Standards Association (CSA), 5060 Spectrum Way, Suite 100, Mississauga, Ontario, L4W 5N6, Canada, 800-463-6727, <http://www.csa.ca/>.

(1) C22.2 No. 30-M1986—Explosion-Proof Enclosures for Use in Class I Hazardous Locations, Reaffirmed 2007 (“CAN/CSA C22.2 No. 30-M1986”), IBR approved for §111.106-3(b).

(2) C22.2 No. 213-M1987—Non-incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations, Reaffirmed 2008 (“CAN/CSA C22.2 No. 213-M1987”), IBR approved for §111.106-3(b).

(3) CAN/CSA-C22.2 No. 0-M91—General Requirements—Canadian Electrical Code, Part II, Reaffirmed 2006 (“CAN/CSA C22.2 No. 0-M91”), IBR approved for §111.106-3(b).

(4) CAN/CSA-C22.2 No. 157-92—Intrinsically Safe and Non-incendive Equipment for Use in Hazardous Locations, Reaffirmed 2006 (“CAN/CSA C22.2 No. 157-92”), IBR approved for §111.106-3(b).

(h) DLA Document Services, Department of Defense, Single Stock Point, 700 Robbins Avenue, Philadelphia, PA 19111, 215-697-6396, <http://www.assistdocs.com>.

(1) MIL-C-24640A—Military Specification Cables, Light Weight, Electric, Low Smoke, for Shipboard Use, Gen-

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eral Specification for (1995) Supplement 1, June 26, 1995 (“NPFC MIL-C-24640A”), IBR approved for §§111.60-1 and 111.60-3.

(2) MIL-C-24643A—Military Specification Cables and Cords, Electric, Low Smoke, for Shipboard Use, General Specification for (1996), Amendment 2, March 13, 1996 (“MIL-C-24643A”), IBR approved for §§111.60-1 and 111.60-3.

(3) MIL-DTL-24640C with Supplement 1—Detail Specification Cables, Lightweight, Low Smoke, Electric, for Shipboard Use, General Specification for, November 18, 2011 (“MIL-DTL-24640C”), IBR approved for §111.106-5(a).

(4) MIL-DTL-24643C with Supplement 1A—Detail Specification Cables, Electric, Low Smoke Halogen-Free, for Shipboard Use, General Specification for, December 13, 2011 (dated October 1, 2009) (“MIL-DTL-24643C”), IBR approved for §111.106-5(a).

(5) MIL-W-76D—Military Specification Wire and Cable, Hook-Up, Electrical, Insulated, General Specification for (2003) Amendment 1-2003, February 6, 2003 (“NPFC MIL-W-76D”), IBR approved for §111.60-11.

(i) FM Approvals, P.O. Box 9102, Norwood, MA 02062, 781-440-8000, <http://www.fmglobal.com>.

(1) Class Number 3600—Approval Standard for Electric Equipment for use in Hazardous (Classified) Locations General Requirements, November 1998 (“FM Approvals Class Number 3600”), IBR approved for §111.106-3(b).

(2) Class Number 3610—Approval Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations, January 2010 (“FM Approvals Class Number 3610”), IBR approved for §111.106-3(b).

(3) Class Number 3611—Approval Standard for Non-incendive Electrical Equipment for Use in Class I and II, Division 2, and Class III, Divisions 1 and 2, Hazardous (Classified) Locations, December 2004 (“FM Approvals Class Number 3611”), IBR approved for §111.106-3(b).

(4) Class Number 3615—Approval Standard for Explosionproof Electrical Equipment General Requirements, August 2006 (“FM Approvals Class Number 3615”), IBR approved for §111.106-3(b).

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(5) Class Number 3620—Approval Standard for Purged and Pressurized Electrical Equipment for Hazardous (Classified) Locations, August 2000 (“FM Approvals Class Number 3620”), IBR approved for § 111.106-3(b).

(j) Institute of Electrical and Electronic Engineers (IEEE), IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854, 732-981-0060, <http://www.ieee.org>.

(1) IEEE Std C37.04-1999—IEEE Standard Rating Structure for AC High-Voltage Circuit Breakers, 1999 (“IEEE C37.04”), IBR approved for § 111.54-1.

(2) IEEE Std C37.010-1999—IEEE Application Guide for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis, 1999 (“IEEE C37.010”), IBR approved for § 111.54-1.

(3) IEEE Std C37.13-1990—IEEE Standard for Low-Voltage AC Power Circuit Breakers Used in Enclosures, October 22, 1990 (“IEEE C37.13”), IBR approved for § 111.54-1.

(4) IEEE Std C37.14-2002—IEEE Standard for Low-Voltage DC Power Circuit Breakers Used in Enclosures, April 25, 2003 (“IEEE C37.14”), IBR approved for § 111.54-1.

(5) IEEE Std 45-1998—IEEE Recommended Practice for Electric Installations on Shipboard, October 19, 1998 (“IEEE 45-1998”), IBR approved for §§ 111.30-19, 111.105-3, 111.105-31 and 111.105-41.

(6) IEEE Std 45-2002—IEEE Recommended Practice for Electrical Installations On Shipboard, October 11, 2002 (“IEEE 45-2002”), IBR approved for §§ 111.05-7, 111.15-2, 111.30-1, 111.30-5, 111.33-3, 111.33-5, 111.40-1, 111.60-1, 111.60-3, 111.60-5, 111.60-11, 111.60-13, 111.60-19, 111.60-21, 111.60-23, 111.75-5 and 113.65-5.

(7) IEEE 100—The Authoritative Dictionary of IEEE Standards Terms, Seventh Edition, 2000 (“IEEE 100”), IBR approved for § 110.15-1.

(8) IEEE Std 1202-1991—IEEE Standard for Flame Testing of Cables for Use in Cable Tray in Industrial and Commercial Occupancies, 1991 (“IEEE 1202”), IBR approved for §§ 111.60-6 and 111.107-1.

(9) IEEE Std 1580-2001—IEEE Recommended Practice for Marine Cable for Use on Shipboard and Fixed or Floating Platforms, December 17, 2001

(“IEEE 1580”), IBR approved for §§ 111.60-1, 111.60-2, 111.60-3 and 111.106-5(a).

(k) International Electrotechnical Commission (IEC), 3 Rue de Varembe, Geneva, Switzerland, +41 22 919 02 11, <http://www.iec.ch/>.

(1) IEC 60068-2-52—Environmental Testing Part 2: Tests—Test Kb: Salt Mist, Cyclic (Sodium Chloride Solution), Second Edition, 1996 (“IEC 60068-2-52”), IBR approved for § 110.15-1.

(2) IEC 60079-0—Electrical apparatus for Explosive Gas Atmospheres—Part 0: General Requirements, Edition 3.1, 2000 (“IEC 60079-0”), IBR approved for §§ 111.105-1, 111.105-3, 111.105-5, 111.105-7, and 111.105-17.

(3) IEC 60079-1—Electrical Apparatus for Explosive Gas Atmospheres—Part 1: Flameproof Enclosures “d” including corr.1, Fourth Edition, 2001 (“IEC 60079-1”), IBR approved for §§ 111.105-1, 111.105-3, 111.105-5, 111.105-7, 111.105-9, and 111.105-17.

(4) IEC 60079-1:2007—Explosive Atmospheres—Part 1: Equipment Protection by Flameproof Enclosures “d”, Sixth Edition, 2007-04, IBR approved for § 111.106-3(b).

(5) IEC 60079-2—Electrical Apparatus for Explosive Gas Atmospheres—Part 2: Pressurized Enclosures “p”, Fourth Edition, 2001 (“IEC 60079-2”), IBR approved for §§ 111.105-1, 111.105-3, 111.105-5, 111.105-7 and 111.105-17.

(6) IEC 60079-2:2007—Explosive atmospheres—Part 2: Equipment protection by pressurized enclosures “p”, Fifth Edition, 2007-02, IBR approved for § 111.106-3(b).

(7) IEC 60079-5—Electrical Apparatus for Explosive Gas Atmospheres—Part 5: Powder Filling “q”, Second Edition, 1997 (“IEC 60079-5”), IBR approved for §§ 111.105-1, 111.105-3, 111.105-5, 111.105-7, 111.105-15 and 111.105-17.

(8) IEC 60079-5:2007—Explosive atmospheres—Part 5: Equipment protection by powder filling “q”, Third edition, 2007-03, IBR approved for § 111.106-3(b).

(9) IEC 60079-6—Electrical Apparatus for Explosive Gas Atmospheres—Part 6: Oil Immersion “o”, Second Edition, 1995 (“IEC 60079-6”), IBR approved for §§ 111.105-1, 111.105-3, 111.105-5, 111.105-7, 111.105-15 and 111.105-17.

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(10) IEC 60079-6:2007—Explosive atmospheres—Part 6: Equipment protection by oil immersion “o”, Third edition, 2007-03, IBR approved for §§ 111.106-3(b).

(11) IEC 60079-7—Electrical Apparatus for Explosive Gas Atmospheres—Part 7: Increased Safety “e”, Third Edition, 2001 (“IEC 60079-7”), IBR approved for §§ 111.105-1, 111.105-3, 111.105-5, 111.105-7, 111.105-15 and 111.105-17.

(12) IEC 60079-7:2006—Explosive atmospheres—Part 7: Equipment protection by increased safety “e”, Fourth edition, 2006-07, IBR approved for §§ 111.106-3(b).

(13) IEC 60079-11—Electrical Apparatus for Explosive Gas Atmospheres—Part 11: Intrinsic Safety “i”, Fourth Edition, 1999 (“IEC 60079-11”), IBR approved for §§ 111.105-1, 111.105-3, 111.105-5, 111.105-7, 111.105-11 and 111.105-17.

(14) IEC 60079-11:2006—Explosive atmospheres—Part 11: Equipment protection by intrinsic safety “i”, Fifth edition, 2006-07, IBR approved for §§ 111.106-3(b).

(15) IEC 60079-13:2010—Explosive atmospheres—Part 13: Equipment protection by pressurized room “p”, Edition 1.0, 2010-10, IBR approved for §§ 111.106-3(b).

(16) IEC 60079-15—Electrical Apparatus for Explosive Gas Atmospheres—Part 15: Type of Protection “n”, Second Edition, 2001 (“IEC 60079-15”), IBR approved for §§ 111.105-1, 111.105-3, 111.105-5, 111.105-7, 111.105-15 and 111.105-17.

(17) IEC 60079-15:2010—Explosive atmospheres—Part 15: Equipment protection by type of protection “n”, Edition 4.0, 2010-01, IBR approved for §§ 111.106-3(b).

(18) IEC 60079-18 Electrical Apparatus for Explosive Gas Atmospheres—Part 18: Encapsulation “m”, First Edition, 1992 (“IEC 79-18”), IBR approved for §§ 111.105-1, 111.105-3, 111.105-5, 111.105-7, 111.105-15 and 111.105-17.

(19) IEC 60079-18:2009—Explosive atmospheres—Part 18: Equipment protection by encapsulation “m”, Edition 3.0, 2009-05, IBR approved for §§ 111.106-3(b) and (d).

(20) IEC 60079-25:2010—Explosive atmospheres—Part 25: Intrinsically safe electrical systems, Edition 2.0, 2010-02, IBR approved for §§ 111.106-3(b).

(21) IEC 60092-101—Electrical Installation in Ships, Part 101: Definitions and General Requirements, Edition 4.1, 2002 (“IEC 60092-101”), IBR approved for §§ 110.15-1 and 111.81-1.

(22) IEC 60092-201—Electrical Installation in Ships, Part 201: System Design—General, Fourth Edition, 1994 (“IEC 92-201”), IBR approved for §§ 111.70-3 and 111.81-1.

(23) IEC 60092-202—Amendment 1 Electrical Installation in Ships, Part 202: System Design—Protection, 1996 (“IEC 92-202”), IBR approved for §§ 111.12-7, 111.50-3, 111.53-1 and 111.54-1.

(24) IEC 60092-301—Amendment 2 Electrical Installation in Ships, Part 301: Equipment—Generators and Motors, 1995 (“IEC 92-301”), IBR approved for §§ 111.12-7, 111.25-5 and 111.70-1.

(25) IEC 60092-302—Electrical Installation in Ships, Part 302: Low-Voltage Switchgear and Control Gear Assemblies, Fourth Edition, 1997 (“IEC 60092-302”), IBR approved for §§ 111.30-1, 111.30-5 and 111.30-19.

(26) IEC 60092-303—Electrical Installation in Ships, Part 303: Equipment—Transformers for Power and Lighting, Third Edition, 1980 (“IEC 92-303”), IBR approved for §§ 111.20-15.

(27) IEC 60092-304—Amendment 1 Electrical Installation in Ships, Part 304: Equipment—Semiconductor Convertors, 1995 (“IEC 92-304”), IBR approved for §§ 111.33-3 and 111.33-5.

(28) IEC 60092-306—Electrical Installation in Ships, Part 306: Equipment—Luminaries and accessories, Third Edition, 1980 (“IEC 92-306”), IBR approved for §§ 111.75-20 and 111.81-1.

(29) IEC 60092-350:2008—Electrical installations in ships—Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications, Edition 3.0, 2008-02, IBR approved for §§ 111.106-5(a).

(30) IEC 60092-352—Electrical Installation in Ships—Choice and Installation of Cables for Low-Voltage Power Systems, Second Edition, 1997 (“IEC 60092-352”), IBR approved for §§ 111.60-3, 111.60-5 and 111.81-1.

(31) IEC 60092-353—Electrical Installations in Ships—Part 353: Single and Multicore Non-Radial Field Power Cables with Extruded Solid Insulation for Rated Voltages 1kV and 3kV, Second

Edition, 1995 ("IEC 60092-353"), IBR approved for §§ 111.60-1, 111.60-3 and 111.60-5.

(32) IEC 60092-353:2011—Electrical installations in ships—Part 353: Power cables for rated voltages 1 kV and 3 kV, Edition 3.0, 2011-08, IBR approved for § 111.106-5(a).

(33) IEC 60092-401—Electrical Installations in Ships, Part 401: Installation and Test of completed Installation with amendment 1 (1987) and amendment 2 (1997), Third Edition, 1980, ("IEC 60092-401"), IBR approved for §§ 111.05-9 and 111.81-1.

(34) IEC 60092-502—Electrical installations in ships—Part 502: Tankers—Special features—Fifth edition, 1999-02 ("IEC 60092-502"), IBR approved for §§ 111.81-1, 111.105-31, 111.106-3(b), 111.106-5(c), and 111.106-15(a).

(35) IEC 60092-503—Electrical installations in ships, Part 503: Special features: A.C. supply systems with voltages in the range of above 1kV up to and including 11kV, First Edition, 1975 ("IEC 60092-503"), IBR approved for § 111.30-5.

(36) IEC 60331-11—Tests for electric cables under fire conditions—Circuit integrity—Part 11: Apparatus—Fire alone at a flame temperature of at least 750 °C, First Edition, 1999 ("IEC 60331-11"), IBR approved for § 113.30-25.

(37) IEC 60331-21—Tests for Electric Cables Under Fire Conditions—Circuit Integrity—Part 21: Procedures and Requirements—Cables of Rated Voltage up to and Including 0.6/1.0kV, First Edition, 1999 ("IEC 60331-21"), IBR approved for § 113.30-25.

(38) IEC 60332-1—Tests on Electric Cables Under Fire Conditions, Part 1: Test on a Single Vertical Insulated Wire or Cable, Third Edition, 1993 ("IEC 60332-1"), IBR approved for § 111.30-19.

(39) IEC 60332-3-22—Tests on Electric Cables Under Fire Conditions—Part 3-22: Test for Vertical Flame Spread of Vertically-Mounted Bunched Wires or Cables—Category A, First Edition, 2000 ("IEC 60332-3-22"), IBR approved for §§ 111.60-1, 111.60-2, 111.60-6 and 111.107-1.

(40) IEC 60529—Degrees of Protection Provided by Enclosures (IP Code), Edition 2.1, 2001 ("IEC 60529"), IBR approved for §§ 110.15-1, 111.01-9, 113.10-7,

113.20-3, 113.25-11, 113.30-25, 113.37-10, 113.40-10 and 113.50-5.

(41) IEC 60533—Electrical and Electronic Installations in Ships—Electromagnetic Compatibility, Second Edition, (1999), ("IEC 60533"), IBR approved for § 113.05-7.

(42) IEC 60947-2—Low-Voltage Switchgear and Controlgear Part 2: Circuit-Breakers, Third Edition, 2003 ("IEC 60947-2"), IBR approved for § 111.54-1.

(43) IEC 61363-1—Electrical Installations of Ships and Mobile and Fixed Offshore Units—Part 1: Procedures for Calculating Short-Circuit Currents in Three-Phase a.c., First Edition, 1998 ("IEC 61363-1"), IBR approved for § 111.52-5.

(44) IEC 62271-100—High-voltage switchgear and controlgear—part 100: High-voltage alternating current circuitbreakers, Edition 1.1, 2003 ("IEC 62271-100"), IBR approved for § 111.54-1.

(1) International Maritime Organization (IMO), Publications Section, 4 Albert Embankment, London SE1 7SR, United Kingdom, +44 (0)20 7735 7611, <http://www.imo.org>.

(1) International Convention for the Safety of Life at Sea (SOLAS), Consolidated Text of the International Convention for the Safety of Life at Sea, 1974, and its Protocol of 1988: Article, Annexes and Certificates. (Incorporating all Amendments in Effect from January 2001), ("IMO SOLAS 74"), IBR approved for §§ 111.99-5, 111.105-31, 112.15-1 and 113.25-6.

(2) [Reserved]

(m) International Society of Automation (ISA), 67 Alexander Drive, P.O. Box 12277, Research Triangle Park, NC 27709, 919-549-8411, <http://www.isa.org>.

(1) RP 12.6—Wiring Practices for Hazardous (Classified) Locations Instrumentation Part I: Intrinsic Safety, 1995 ("ISA RP 12.6"), IBR approved for § 111.105-11.

(2) [Reserved]

(n) Lloyd's Register, 71 Fenchurch Street, London EC3M 4BS, +44 (0)20 7709 9166, <http://www.lr.org>.

(1) Type Approval System-Test Specification Number 1 (2002), IBR approved for § 113.05-7.

(2) [Reserved]

(o) National Electrical Manufacturers Association (NEMA), 1300 North

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17th Street, Rosslyn, VA 22209, 703-841-3200, <http://www.nema.org>.

(1) NEMA Standards Publication ICS 2-2000, Industrial Control and Systems Controllers, Contactors, and Overload Relays, Rated 600 Volts, (2000), (“NEMA ICS 2”), IBR approved for § 111.70-3.

(2) NEMA Standards Publication ICS 2.3-1995, Instructions for the Handling, Installation, Operation, and Maintenance of Motor Control Centers Rated not More Than 600 Volts, (1995), (“NEMA ICS 2.3”), IBR approved for § 111.70-3.

(3) NEMA Standards Publication No. ICS 2.4-2003, NEMA and IEC Devices for Motor Service—a Guide for Understanding the Differences, (2003), (“NEMA ICS 2.4”), IBR approved for § 111.70-3.

(4) NEMA Standards Publication No. ANSI/NEMA 250-1997, Enclosures for Electrical Equipment (1000 Volts Maximum) (Aug. 30, 2001), (“NEMA 250”), IBR approved for §§ 110.15-1, 111.01-9, 110.15-1, 113.10-7, 113.20-3, 113.25-11, 113.30-25, 113.37-10, 113.40-10 and 113.50-5.

(5) NEMA Standards Publication No. WC-3-1992, Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy, Revision 1, February 1994, (“NEMA WC-3”), IBR approved for § 111.60-13.

(6) NEMA WC-70/ICEA S-95-658-1999 Standard for Non-Shielded Power Rated Cable 2000V or Less for the Distribution of Electrical Energy, (1999), (“NEMA WC-70”), IBR approved for § 111.60-13.

(p) National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169, 617-770-3000, <http://www.nfpa.org>.

(1) NEC 2002 (NFPA 70)—National Electrical Code Handbook, Ninth Edition, 2002 (“NFPA NEC 2002”), IBR approved for §§ 111.05-33, 111.20-15, 111.25-5, 111.50-3, 111.50-7, 111.50-9, 111.53-1, 111.54-1, 111.55-1, 111.59-1, 111.60-7, 111.60-13, 111.60-23, 111.81-1, 111.105-1, 111.105-3, 111.105-5, 111.105-7, 111.105-9, 111.105-15, 111.105-17, and 111.107-1.

(2) NFPA 70—National Electrical Code, 2011 Edition (“NFPA 70”), IBR approved for §§ 110.15-1(b), 111.106-3(b), and 111.106-5(c).

(3) NFPA 77—Recommended Practice on Static Electricity, 2000 (“NFPA 77”), IBR approved for § 111.105-27.

(4) NFPA 99—Standard for Health Care Facilities, 2005 (“NFPA 99”), IBR approved for § 111.105-37.

(5) NFPA 496—Standard for Purged and Pressurized Enclosures for Electrical Equipment, 2003 (“NFPA 496”), IBR approved for § 111.105-7.

(6) NFPA 496—Standard for Purged and Pressurized Enclosures for Electrical Equipment, 2008 Edition (“NFPA 496 (2008)”), IBR approved for § 111.106-3(c).

(q) Naval Sea Systems Command (NAVSEA), Code 55Z, 1333 Isaac Hull Avenue SE., Washington Navy Yard, Washington, DC 20362, 202-781-0000, <http://www.navsea.navy.mil>.

(1) DDS 300-2—A.C. Fault Current Calculations, 1988 (“NAVSEA DDS 300-2”), IBR approved for § 111.52-5.

(2) MIL-HDBK-299(SH)—Military Handbook Cable Comparison Handbook Data Pertaining to Electric Shipboard Cable Notice 1-1991 (Revision of MIL-HDBK-299(SH) (1989)), 1991 (“NAVSEA MIL-HDBK-299(SH)”), IBR approved for § 111.60-3.

(r) UL (formerly Underwriters Laboratories, Inc.), 12 Laboratory Drive, Research Triangle Park, NC 27709-3995, 919-549-1400, <http://www.ul.com>.

(1) UL 44—Standard for Thermoset-Insulated Wire and Cable, Fifteenth Edition, Mar. 22, 1999 (Revisions through and including May 13, 2002), (“UL 44”), IBR approved for § 111.60-11.

(2) UL 50—Standard for Safety Enclosures for Electrical Equipment, Eleventh Edition, Oct. 19, 1995 (“UL 50”), IBR approved for § 111.81-1.

(3) UL 62—Standard for Flexible Cord and Fixture Wire, Sixteenth Edition, Oct. 15, 1997 (“UL 62”), IBR approved for § 111.60-13.

(4) UL 83—Standard for Thermoplastic-Insulated Wires and Cables, Twelfth Edition, Sept. 29, 1998 (“UL 83”), IBR approved for § 111.60-11.

(5) UL 484—Standard for Room Air Conditioners, Seventh Edition, Apr. 27, 1993 (Revisions through and including Sep. 3, 2002) (“UL 484”), IBR approved for § 111.87-3.

(6) UL 489—Molded-Case Circuit Breakers, Molded-Case Switches, and

Circuit-Breaker Enclosures, Ninth Edition, Oct. 31, 1996, (Revisions through and including Mar. 22, 2000), (“UL 489”), IBR approved for §§ 111.01-15 and 111.54-1.

(7) UL 514A—Metallic Outlet Boxes, Ninth Edition, (Dec. 27, 1996), (“UL 514A”), IBR approved for § 111.81-1.

(8) UL 514B—Conduit, Tubing, and Cable Fittings, Fourth Edition, (Nov. 3, 1997), (“UL 514B”), IBR approved for § 111.81-1.

(9) UL 514C—Standard for Non-metallic Outlet Boxes, Flush-Device Boxes, and Covers, Second Edition, (Oct. 31, 1988), (“UL 514C”), IBR approved for § 111.81-1.

(10) UL 674—Standard for Safety: Electric Motors and Generators for Use in Division 1 Hazardous (Classified) Locations, Fourth Edition with revisions through August 12, 2008 (dated December 11, 2003) (“ANSI/UL 674”), IBR approved for § 111.106-3(b).

(11) UL 823—Electric Heaters for Use in Hazardous (Classified) Locations, Ninth Edition including revisions through November 15, 2007 (dated October 20, 2006) (“ANSI/UL 823”), IBR approved for § 111.106-3(b).

(12) UL 844—Standard for Safety: Luminaires for Use in Hazardous (Classified) Locations, Twelfth Edition including revisions through November 20, 2008 (dated January 11, 2006) (“ANSI/UL 844”), IBR approved for § 111.106-3(b).

(13) UL 913—Standard for Safety: Intrinsically Safe Apparatus and Associated Apparatus for Use in Class i, ii, and iii, Division 1, Hazardous (Classified) Locations, Sixth Edition, (Aug. 8, 2002) (Revisions through and including Dec. 15, 2003), (“UL 913”), IBR approved for § 111.105-11.

(14) UL 913—Standard for Safety: Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous Locations, Seventh Edition including revisions through June 3, 2010 (dated July 31, 2006) (“ANSI/UL 913”), IBR approved for § 111.106-3(b).

(15) UL 1042—Standard for Electric Baseboard Heating Equipment, Apr. 11, 1994, IBR approved for § 111.87-3.

(16) UL 1072—Standard for Medium-Voltage Power Cables, Third Edition, Dec. 28, 2001 (Revisions through and in-

cluding Apr. 14, 2003), IBR approved for § 111.60-1.

(17) UL 1104—Standard for Marine Navigation Lights, Second Edition, Oct. 29, 1998, IBR approved for § 111.75-17.

(18) UL 1203—Standard for Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations, Third Edition, Sep. 7, 2000 (Revisions through and including Apr. 30, 2004), IBR approved for § 111.105-9.

(19) UL 1203—Standard for Safety: Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations, Fourth Edition including revisions through October 28, 2009 (dated September 15, 2006) (“ANSI/UL 1203”), IBR approved for § 111.106-3(b).

(20) UL 1309—Marine Shipboard Cables, First Edition, July 14, 1995, IBR approved for §§ 111.60-1, 111.60-3, and 111.106-5(a).

(21) UL 1581—Reference Standard for Electrical Wires, Cables, and Flexible Cords, 2003, IBR approved for §§ 111.30-19, 111.60-2 and 111.60-6.

(22) UL 1598—Luminaires, First Edition, Jan. 31, 2000, IBR approved for § 111.75-20.

(23) UL 1598A—Standard for Supplemental Requirements for Luminaires for Installation on Marine Vessels, First Edition, Dec. 4, 2000, IBR approved for § 111.75-20.

(24) UL 1604—Electrical Equipment for Use in Class I and II, Division 2 and Class III Hazardous (Classified) Locations, Third Edition including revisions through February 3, 2004 (dated April 28, 1994), IBR approved for § 111.106-3(b).

(25) UL 2225—Cables and Cable-Fittings for Use in Hazardous (Classified) Locations, Second Edition, December 21, 2005 (“ANSI/UL 2225”), IBR approved for § 111.106-3(b).

[USCG-2012-0208, 79 FR 48925, Aug. 18, 2014]

Subpart 110.15—Terms Used in This Subchapter

§ 110.15-1 Definitions.

As used in this subchapter—

(a) The electrical and electronic terms are defined in IEEE 100 or IEC

60092-101 (both incorporated by reference; see 46 CFR 110.10-1).

(b) In addition to the definitions in paragraph (a) of this section—

Coastwise Vessel means a vessel that normally navigates the waters of any ocean or the Gulf of Mexico 20 nautical miles or less offshore and is certificated for coastwise navigation by the Coast Guard.

Commandant means the Commandant of the Coast Guard.

Corrosion resistant material or finish means any material or finish that meets the testing requirements of ASTM B 117 (incorporated by reference; see 46 CFR 110.10-1) or test Kb in IEC 60068-2-52.

Corrosive location means a location exposed to the weather on vessels operating in salt water or a location on board which may be exposed to the corrosive effects of the cargo carried or of the vessel's systems.

Dead ship condition is the condition in which the main propulsion plant, boilers and auxiliaries are not in operation due to the absence of power.

Dripproof means enclosed so that equipment meets at least a NEMA 250 (incorporated by reference; see 46 CFR 110.10-1) Type 1 with dripshield, Type 2, or Type 12; or IEC 60529 (incorporated by reference; see 46 CFR 110.10-1) IP 22 rating.

Embarkation station means a location from which persons embark into survival craft or are assembled before embarking into survival craft.

Emergency squad means the crew designated on the station bill as the nucleus of a damage control party.

Flashpoint means the minimum temperature at which a liquid gives off a vapor in sufficient concentration to form an ignitable mixture with air near the surface of the liquid, as specified by the appropriate test procedure and apparatus.

Great Lakes vessel means a vessel that navigates exclusively on the Great Lakes and their connecting and tributary waters.

IECEX System means an international certification system covering equipment that meets the provisions of the IEC 60079 series of standards (incorporated by reference, see § 110.10-1). The IECEX System is comprised of an Ex

Certification Body and an Ex Testing Laboratory that has been accepted into the IECEX System after satisfactory assessment of their competence to ISO/IEC Standard 17025, ISO/IEC Guide 65, IECEX rules of procedures, IECEX operational documents, and IECEX technical guidance documents as part of the IECEX assessment process.

Independent laboratory means a laboratory that is accepted by the Commandant under part 159 of this chapter for the testing and listing or certification of electrical equipment.

Integral tank means a tank that is a structural part of the vessel's hull and is influenced in the same manner and by the same loads that stress the adjacent hull structure.

Location not requiring an exceptional degree of protection means a location which is not exposed to the environmental conditions outlined in the definition for locations requiring exceptional degrees of protection. This location requires the degree of protection of § 111.01-9 (c) or (d) of this chapter. These locations include—

- (1) An accommodation space;
- (2) A dry store room;
- (3) A passageway adjacent to quarters;
- (4) A water closet without a shower or bath;
- (5) A radio, gyro and chart room; and
- (6) A location with similar environmental conditions.

Location requiring an exceptional degree of protection means a location exposed to weather, seas, splashing, pressure-directed liquids, or similar moisture conditions. These locations include—

- (1) On deck;
- (2) A machinery space;
- (3) A cargo space;
- (4) A location within a galley or pantry area, laundry, or water closet which contains a shower or bath; and
- (5) Other spaces with similar environmental conditions.

Marine inspector or *inspector* means a civilian employee or military member of the Coast Guard assigned by an Officer in Charge, Marine Inspection, or the Commandant to perform duties with respect to the inspection, enforcement, and administration of vessel

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safety and navigation laws and regulations.

Non-hazardous means an area in which an explosive gas atmosphere is not expected to be present in quantities that require special precautions for the construction, installation, and use of electrical equipment.

Nonsparking fan means nonsparking fan as defined in ABS Steel Vessel Rules (incorporated by reference; see 46 CFR 110.10-1), section 4-8-3/11.

Ocean vessel means a vessel that navigates the waters of any ocean or the Gulf of Mexico more than 20 nautical miles offshore and is certificated by the Coast Guard for ocean navigation.

Qualified person means a person who by virtue of that person's knowledge, ability, experience, specialized training, or licensing can competently and safely perform required electrical duties or functions.

Shut-off valve is a valve that closes a pipeline and provides nominal metal-to-metal contact between the valve operating parts, including the disc and gate, and the valve body.

Special Division 1 is a Class I, Zone 0 hazardous location in Article 505 of NFPA 70 (incorporated by reference, see §110.10-1) that may require special considerations for electrical equipment installed in such locations.

Waterproof means watertight; except that, moisture within or leakage into the enclosure is allowed if it does not interfere with the operation of the equipment enclosed. In the case of a generator or motor enclosure, *waterproof* means watertight; except that, leakage around the shaft may occur if the leakage is prevented from entering the oil reservoir and the enclosure provides for automatic drainage.

Watertight means enclosed so that equipment meets at least a NEMA 250 Type 4 or 4X or an IEC 60529 IP 56 rating.

Zone 0 is a hazardous location in which an explosive gas or vapor in mixture with air is continuously present or present for long periods.

Zone 1 is a hazardous location in which an explosive gas or vapor in mixture with air is likely to occur in normal operating conditions.

Zone 2 is a hazardous location in which an explosive gas or vapor in mix-

ture with air is not likely to occur in normal operating conditions, or in which such a mixture, if it does occur, will only exist for a short time.

[CGD 94-108, 61 FR 28274, June 4, 1996, as amended at 62 FR 23907, May 1, 1997; 62 FR 27659, May 20, 1997; USCG-2000-7790, 65 FR 58462, Sept. 29, 2000; USCG-2003-16630, 73 FR 65195, Oct. 31, 2008; USCG-2013-0671, 78 FR 60152, Sept. 30, 2013; USCG-2012-0208, 79 FR 48929, Aug. 18, 2014]

Subpart 110.20—Equivalents

§ 110.20-1 Equivalents.

The Commanding Officer, Marine Safety Center (MSC), may approve any arrangement, fitting, appliance, apparatus, equipment, calculation, information, or test that provides a level of safety equivalent to that established by specific provisions of this subchapter. Requests for approval must be submitted to the Marine Safety Center. If necessary, the Marine Safety Center may require engineering evaluations and tests to demonstrate the equivalence of the substitute.

[CGD 94-108, 61 FR 28275, June 4, 1996]

Subpart 110.25—Plan Submittal

§ 110.25-1 Plans and information required for new construction.

The following plans, if applicable to the particular vessel, must be submitted for Coast Guard review in accordance with §110.25-3:

NOTE: A Navigation and Vessel Inspection Circular on the Subject of "Coast Guard Review of Merchant Vessel Plans and Specifications" is available from the offices listed in §110.25-3. The Circular recommends practices and procedures for plan submittals.

(a) Elementary one-line wiring diagram of the power system, supported, by cable lists, panelboard summaries, and other information including—

(1) Type and size of generators and prime movers;

(2) Type and size of generator cables, bus-tie cables, feeders, and branch circuit cables;

(3) Power, lighting, and interior communication panelboards with number of circuits and rating of energy consuming devices;

(4) Type and capacity of storage batteries;

(5) Rating of circuit breakers and switches, interrupting capacity of circuit breakers, and rating or setting of overcurrent devices;

(6) Computations of short circuit currents in accordance with Subpart 111.52; and

(7) Overcurrent protective device coordination analysis for each generator distribution system of 1500 kilowatts or above that includes selectivity and shows that each overcurrent device has an interrupting capacity sufficient to interrupt the maximum asymmetrical short-circuit current available at the point of application.

(b) Electrical plant load analysis including connected loads and computed operating loads for each condition of operation.

(c) Elementary and isometric or deck wiring plans, including the location of each cable splice, a list of symbols, and the manufacturer's name and identification of each item of electrical equipment, of each—

- (1) Steering gear circuit and steering motor controller;
- (2) General emergency alarm system;
- (3) Sound-powered telephone or other fixed communication system;
- (4) Power-operated boat winch;
- (5) Fire detecting and alarm system;
- (6) Smoke detecting system;
- (7) Electric watertight door system;
- (8) Fire door holding systems;
- (9) Public address system;
- (10) Manual alarm system; and
- (11) Supervised patrol system.

(d) Deck wiring or schematic plans of power systems and lighting systems, including symbol lists, with manufacturer's name and identification of each item of electric equipment, and showing:

- (1) Locations of cables;
- (2) Cable sizes and types;
- (3) Locations of each item of electric equipment;
- (4) Locations of cable splices.
- (e) Switchboard wiring diagram.
- (f) Switchboard material and nameplate list.
- (g) Elementary wiring diagram of metering and automatic switchgear.
- (h) Description of operation of propulsion control and bus transfer switchgear.

(i) For vessels with hazardous locations for which part 111, subpart 111.105, is applicable, plans showing the extent and classification of all hazardous locations, including information on—

- (1) Equipment identification by manufacturer's name and model number;
- (2) Equipment use within the system;
- (3) Cable parameters;
- (4) Equipment locations;
- (5) Installation details; and
- (6) A certificate of testing, and listing or certification, by an independent laboratory, where required by the respective standard.

(j) Plans and installation instructions for each approved component of an intrinsically safe system listed or certified by an independent laboratory (see § 111.105-11 of this chapter).

(k) Motor starter elementary wiring diagram, enclosure drawing, and starter application.

(l) Plans and information sufficient to evaluate equipment to be considered for equivalency under § 110.20-1.

(m) Plans and information sufficient to evaluate equipment or systems required to meet the specifications of this Subchapter but not to be approved by the Commandant.

NOTE TO PARAGRAPH (m): This equipment evaluation is generally performed by the Commanding Officer, Marine Safety Center and includes items such as cable splices, signalling lights, shore connection boxes, submersible pumps, engine order telegraph systems, shaft speed and thrust indicator systems, and steering gear failure alarm systems.

(n) Plans and information sufficient to evaluate equipment required by this subchapter to meet a reference standard or military specification.

NOTE TO PARAGRAPH (n): This equipment evaluation is generally performed by the Commanding Officer, Marine Safety Center, and includes items such as circuit breakers, switches, lighting fixtures, air heating equipment, busways, outlet boxes, and junction boxes. Items required to meet an IEEE, IEC, NEMA, UL, ANSI, or other industry standard or a military specification are considered acceptable if manufacturer's certification of compliance is indicated on a material list or plan. However, if the standards require third-party testing and listing or certification, proof of listing or certification by an independent laboratory must also be submitted.

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(o) Detailed analysis showing compliance with the MC cable requirements in §111.60-23(b) of this chapter.

(p) For an OSV with hazardous locations to which subpart 111.106 of this part applies, plans showing the extent and classification of all hazardous locations, including information on—

(1) Equipment identification by manufacturer's name and model number;

(2) Equipment use within the system;

(3) Parameters of intrinsically safe systems, including cables;

(4) Equipment locations;

(5) Installation details and/or approved control drawings; and

(6) A certificate of testing, and listing or certification, by an independent laboratory, as defined by 46 CFR 159.001-3, or an IECEx Certificate of Conformity under the IECEx System, where required by the respective standard in §111.106-3(b)(1), (2), or (3) of this subchapter.

[CGD 74-125A, 47 FR 15232, Apr. 8, 1982, as amended by CGD 81-030, 53 FR 17846, May 18, 1988; CGD 94-108, 61 FR 28275, June 4, 1996; 62 FR 23907, May 1, 1997; USCG-2012-0208, 79 FR 48929, Aug. 18, 2014]

§ 110.25-3 Procedure for submitting plans.

(a) The plans required by §110.25-1 must be submitted to one of the following Coast Guard offices:

(1) By visitors to the Commanding Officer, Marine Safety Center, U.S. Coast Guard, 4200 Wilson Boulevard Suite 400, Arlington, VA 22203, or by mail to: Commanding Officer (MSC), Attn: Marine Safety Center, U.S. Coast Guard Stop 7410, 4200 Wilson Boulevard Suite 400, Arlington, VA 20598-7410, in a written or electronic format. Information for submitting the VSP electronically can be found at <http://www.uscg.mil/HQ/MSC>.

(2) The Officer in Charge, Marine Inspection at or nearest the place where the vessel is to be built.

(b) [Reserved]

(c) Three copies of each plan are required so that one can be returned to the submitter. If the submitter desires additional copies of approved plans, he should submit enough for the necessary distribution.

NOTE: The Coast Guard and the American Bureau of Shipping (ABS) coordinate plan review for vessels classed by the ABS in

order to eliminate duplication of effort. An applicant for plan review of a vessel that is classed by the ABS should consult Commanding Officer, Marine Safety Center, to determine applicable procedures for submitting plans.

[CGD 74-125A, 47 FR 15232, Apr. 8, 1982]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §110.25-3, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

EDITORIAL NOTE: By CGD 96-041, 61 FR 50730, Sept. 27, 1996, paragraph (a)(1) of §110.25-3 was amended by removing the word “(G-MSC)”. However, by CGD 94-108, 61 FR 28275, June 4, 1996, the word “(G-MSC)” was removed and the word “(MSC)” was added in its place.

Subpart 110.30—Testing and Inspection

§ 110.30-1 General.

(a) This section supplements the general requirements for testing and inspecting vessels in other parts of this chapter.

(b) In the inspection of electric equipment and installations, the rules of the American Bureau of Shipping for materials and construction, and the certificate of classification that refers to them, except as otherwise provided by this subchapter, are accepted as standard.

(c) This subpart must not be construed to imply that shop tests or factory inspections of electric apparatus or equipment of the types conducted by the American Bureau of Shipping are conducted by the Coast Guard. Shop tests of electric apparatus or equipment are conducted by the Coast Guard only when required by this chapter or when requested, either by the manufacturer, shipbuilder, owner, or the Coast Guard, and agreed to by all.

[CGD 74-125A, 47 FR 15232, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28275, June 4, 1996]

§ 110.30-3 Initial inspection.

The initial inspection, which may be a series of inspections during the construction of the vessel, includes a complete inspection of the electric installation and electric equipment or apparatus. The inspection is to determine

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that the arrangement, materials, and their installations meet this chapter and the approved plans. The inspection also is to determine that the workmanship of all equipment and apparatus and the installation is satisfactory.

§ 110.30-5 Inspection for certification.

Electric installations and electric equipment must be inspected at the inspection for certification and periodic inspection to determine mechanical and electrical condition and performance. Particular note must be made of circuits added or modified after the original issuance of the Certificate of Inspection.

[USCG 1999-4976, 65 FR 6504, Feb. 9, 2000]

§ 110.30-7 Repairs or alterations.

The Officer in Charge, Marine Inspection must be notified before—

- (a) Alterations or modifications that deviate from approved plans; or
- (b) Repairs, alterations, or modifications that affect the safety of the vessel.

[CGD 94-108, 61 FR 28275, June 4, 1996]

PART 111—ELECTRIC SYSTEMS— GENERAL REQUIREMENTS

Subpart 111.01—General

Sec.

- 111.01-1 General.
- 111.01-3 Placement of equipment.
- 111.01-5 Protection from bilge water.
- 111.01-7 Accessibility and spacing.
- 111.01-9 Degrees of protection.
- 111.01-11 Corrosion-resistant parts.
- 111.01-13 Limitations on porcelain use.
- 111.01-15 Temperature ratings.
- 111.01-17 Voltage and frequency variations.
- 111.01-19 Inclination of the vessel.

Subpart 111.05—Equipment Ground, Ground Detection, and Grounded Systems

- 111.05-1 Purpose.

EQUIPMENT GROUND

- 111.05-3 Design, construction, and installation; general.
- 111.05-7 Armored and metallic-sheathed cable.
- 111.05-9 Masts.

SYSTEM GROUNDING

- 111.05-11 Hull return.
- 111.05-13 Grounding connection.

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- 111.05-15 Neutral grounding.
- 111.05-17 Generation and distribution system grounding.
- 111.05-19 Tank vessels; grounded distribution systems.

GROUND DETECTION

- 111.05-20 Grounded distribution systems on OSVs designed to carry flammable or combustible liquids with closed-cup flashpoints not exceeding 60 °C (140 °F).
- 111.05-21 Ground detection.
- 111.05-23 Location of ground indicators.
- 111.05-25 Ungrounded systems.
- 111.05-27 Grounded neutral alternating current systems.
- 111.05-29 Dual voltage direct current systems.

GROUNDING CONDUCTORS

- 111.05-31 Grounding conductors for systems.
- 111.05-33 Equipment safety grounding (bonding) conductors.
- 111.05-37 Overcurrent devices.

Subpart 111.10—Power Supply

- 111.10-1 Definitions.
- 111.10-3 Two generating sources.
- 111.10-4 Power requirements, generating sources.
- 111.10-5 Multiple energy sources.
- 111.10-7 Dead ship.
- 111.10-9 Ship's service supply transformers; two required.

Subpart 111.12—Generator Construction and Circuits

- 111.12-1 Prime movers.
- 111.12-3 Excitation.
- 111.12-5 Construction and testing of generators.
- 111.12-7 Voltage regulation and parallel operation.
- 111.12-9 Generator cables.
- 111.12-11 Generator protection.
- 111.12-13 Propulsion generator protection.

Subpart 111.15—Storage Batteries and Battery Chargers: Construction and Installation

- 111.15-1 General.
- 111.15-2 Battery construction.
- 111.15-3 Battery categories.
- 111.15-5 Battery installation.
- 111.15-10 Ventilation.
- 111.15-20 Conductors.
- 111.15-25 Overload and reverse current protection.
- 111.15-30 Battery chargers.

Subpart 111.20—Transformer Construction, Installation, and Protection

- 111.20-1 General requirements.